

WHAT IS CLAIMED:

1. A navigation system comprising:

a subscriber unit configured to receive and transmit information, the subscriber unit including a global positioning system mechanism to determine subscriber position information, an output mechanism to convey information to a subscriber, and a speech processing mechanism to accommodate communications between the subscriber unit and the subscriber; and

a service provider configured to communicate with the subscriber unit, the communications between the service provider and the subscriber unit including the reception and transmission of navigation information including map information,

wherein the output mechanism prompts the subscriber to speak destination information, the speech processing mechanism receives the destination information and the subscriber unit transmits the subscriber position information and the destination information to the service provider, and the service provider responds by transmitting the navigation information to the subscriber unit, which conveys the navigation information to the subscriber via the output mechanism.

2. The navigation system according to claim 1, wherein the speech processing mechanism includes a speech processing input mechanism to receive requests spoken by the subscriber.

3. The navigation system according to claim 2, wherein the speech processing input mechanism is trained to recognize the subscriber's requests with an accuracy exceeding an accuracy obtainable without training.

4. The navigation system according to claim 1, wherein the output mechanism includes a speech processing output mechanism configured to output messages by synthetically generating recognizable speech patterns.

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5. The navigation system according to claim 1, wherein each of the subscriber unit and the service provider encrypt information before transmitting the information.

6. The navigation system according to claim 5, wherein each user of the subscriber unit is assigned an encryption key, the speech processing mechanism is configured to identify a user on the basis of the voice of the user, and the subscriber unit is configured to use the encryption key assigned to the identified user during navigation by the identified user.

7. The navigation system according to claim 1, wherein the output mechanism is configured to convey graphical map information to the subscriber, and to overlay a current position on the graphically-conveyed map information.

8. The navigation system according to claim 1, wherein the navigation information involves a plurality of points along a route from a current position to a destination, and wherein the subscriber unit is configured to determine a distance between a current position and a position related to one or more points along the route.

9. The navigation system according to claim 8, wherein the subscriber unit requests new map information from the service provider when the distance exceeds a predetermined distance.

5 10. The navigation system according to claim 8, wherein the subscriber unit is configured to notify the subscriber that the route has been deviated from when the distance exceeds a predetermined distance.

10 11. The navigation system according to claim 1, wherein the service provider is configured to store the subscriber position information, the subscriber unit is configured to measure the distance between the stored subscriber position information and a current position, and the subscriber unit transmits the current position to the service provider when the distance exceeds a predetermined distance.

15 12. The navigation system according to claim 1, wherein the information includes information from the Internet.

20 13. The navigation system according to claim 1, wherein the subscriber unit stores a finite set of map information, and wherein the service provider transmits new navigation information before the subscriber unit leaves a geographic area represented by the finite set of map information.

14. The navigation system according to claim 1, wherein the subscriber unit is configured to be mounted on a personal transportation vehicle.

15. The navigation system according to claim 1, wherein the subscriber unit includes a firmware and a software portion, the subscriber unit being configured to receive encrypted firmware and software upgrades, the upgrades being decrypted by, and
5 programmed into, the subscriber unit.

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16. A navigation method comprising:

receiving, by a subscriber unit, position information and destination information, the destination information being spoken by a subscriber;

10 transmitting, by the subscriber unit, the position information and the destination information to a service provider;

receiving, by the subscriber unit, navigation information from the service provider, the navigation information involving a plurality of points along a route from a current position to a destination; and

15 conveying, by the subscriber unit, the navigation information to the subscriber.

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11 17. The navigation method according to claim *13* ~~16~~, wherein the subscriber unit conveys navigation information by synthetically generating recognizable speech patterns.

20 18. The navigation method according to claim 16, further comprising encrypting, by each of the subscriber unit and the service provider, information before transmission.

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12 19. The navigation method according to claim 18, further comprising:
assigning, by the subscriber unit, a first user of a subscriber unit an encryption key;

associating the encryption key of the first user with the voice of the first user;
identifying the first user when the first user speaks; and
using the encryption key assigned to the first user during navigation by the first
user.

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20. The navigation method according to claim 18, further comprising receiving, by
the subscriber unit, encrypted firmware or software upgrades.

¹⁵ 21. The navigation method according to claim ¹³10, further comprising:

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determining, by the subscriber unit or the service provider, the distance between
the current position and a position related to one or more points along the route; and

notifying the subscriber that the route has been deviated from when the distance
exceeds a predetermined distance.

22. The navigation method according to claim 16, further comprising:

determining, by the subscriber unit, the distance between the current position and a
position related to one or more points along the route; and

requesting new map information from the service provider when the distance
exceeds a predetermined distance.

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23. The navigation method according to claim 16, further comprising:

storing, by the service provider, the position information;

measuring, by the subscriber unit, the distance between the stored position
information and the current position; and

transmitting, by the subscriber unit, the current position to the service provider when the distance exceeds a predetermined distance.

24. A computer-readable medium encoded with a plurality of processor-executable instruction sequences for:

receiving, by a subscriber unit, position information and destination information, the destination information being spoken by a subscriber;

transmitting, by the subscriber unit, the position information and the destination information to a service provider;

receiving, by the subscriber unit, navigation information from the service provider, the navigation information involving a plurality of points along a route from a current position to a destination; and

conveying, by the subscriber unit, the navigation information to the subscriber.

²⁰ 25. The computer-readable medium of claim ¹⁹ 24, wherein the subscriber unit conveys navigation information by synthetically generating recognizable speech patterns.

26. The computer-readable medium of claim 24, further comprising processor-executable instruction sequences for encrypting, by each of the subscriber unit and the service provider, information before transmission.

Sub 17 27. The computer-readable medium of claim 26, further comprising processor-executable instruction sequences for:

assigning, by the subscriber unit, a first user of a subscriber unit an encryption key;

associating the encryption key of the first user with the voice of the first user;
identifying the first user when the first user speaks; and
using the encryption key assigned to the first user during navigation by the first
user.

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²¹₂₈. The computer-readable medium of claim ¹⁹₂₄, further comprising processor-executable instruction sequences for:

determining, by the subscriber unit or the service provider, the distance between the current position and a position related to one or more points along the route; and

10 notifying the subscriber that the route has been deviated from when the distance exceeds a predetermined distance.

29. The computer-readable medium of claim 24, further comprising processor-executable instruction sequences for:

15 determining, by the subscriber unit, the distance between the current position and a position related to one or more points along the route; and

requesting new map information from the service provider when the distance exceeds a predetermined distance.

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20 30. The computer-readable medium of claim 24, further comprising processor-executable instruction sequences for:

storing, by the service provider, the position information;

measuring, by the subscriber unit, the distance between the stored position information and the current position; and

transmitting, by the subscriber unit, the current position to the service provider
when the distance exceeds a predetermined distance.

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